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FAMILY DAY CARE EXPERIENCES AND CHILDREN'S INTELLECTUAL COMPETENCE

by

© FRANCES SHERWOOD

A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "Family Day Care Experiences and Children's Intellectual Competence" submitted by Frances Sherwood in partial fulfillment of the requirements for the degree of Master of Education.

Supervisor

Date June 22, 1976

ABSTRACT

The purpose of this study was to explore the relationships that exist between the intellectual competence of young children in selected family day care homes and the opportunities provided for environmental stimulation in these settings.

These relationships were investigated by using selected aspects of the HOME Scale which was designed to observe the child of 12 to 36 months of age in his development of intellectual competence. These observational data were processed to determine the opportunities for highly intellectual experiences in the selected environments, and to make comparisons between the percentages of input from the two developmental situations and from the two environmental sources of highly intellectual experiences. The correspondence between the findings from the observations using the HOME Scale dimensions and the social worker's predictions was also explored.

In general the findings indicated that using Carew's norms, the greater proportion of the children observed in this study could not be predicted to be intellectually competent at the age of three years. In addition, for this population the human environment yielded a higher percentage of situations providing for highly intellectual experiences than did the physical environment. Similarly the percentage of input from the child's environmental sources was greater than the percentages of highly intellectual experiences resulting from the child's self-directed activities. Finally there was less than 50% correspondence between the classifications of experiences resulting from observation processes through the HOME

scale and the social workers' predictions for potentially highly intellectual experiences.

These findings direct attention to the caregiver's need for support in assisting the child using the sources and situations explored in this study. To further investigate the dimensions and effects of environmental input, replications of this exploratory study could probe caregiving functions with larger and different populations, by controlling more variables, using different aspects of a child's global development or through an indepth study of all or some of the children observed.

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THE PROBLEM

INTRODUCTION AND BACKGROUND TO THE PROBLEM

One of the current issues of debate and research in early childhood education concerns those experiences and environments which can provide for optimal development of young children during the preschool years. Studies and projects such as Burton White's Harvard Pre-school Project (1973), the Darcee Early Training Project in Nashville, Tennessee (1971), the Colorado Training Project for Day Care Mothers (1973), the Pacific Oaks Family Day Care Project at Pasadena, California (1971), and various Home Start Demonstration Projects are indicative of a growing concern about what is happening to preschool children, especially in the family setting. It is becoming increasingly evident that parents and other members of the family are the principal influences in the early years of a child's life and all socio-economic groups are being investigated to determine what contributions or deprivations characterize different family settings.

Bronfenbrenner (1974) states that the family is potentially the most effective and economical vehicle for fostering and sustaining the optimal development of the young child. For example, superior language development and mature social and emotional development have been found to relate to the quality of family interaction. The social and emotional interaction within the family provides cognitive stimulation and contributes substantially to language development as well as

to the development of perception and other cognitive faculties (Gordon, 1971; Hess, 1968; Shaw, 1969).

Environmental stimulation or input, must be processed and organized by the child in order for him to assimilate this information and respond to it. Palmer (1973) maintains that it is characteristic of a high level of intellectual development that this processing of information is learned early in life.

Researchers emphasize that the development of a positive self concept is an important dimension in a child's global development (Coopersmith, 1967; Gordon, 1971; Scarfe, 1972). The literature suggests that this self-esteem requires the combination of an emotional environment that tells the child he is loved and worthy and a cognitive climate that allows him to be worthy. The case is made that the influence of the environment upon the development of human capabilities is greatest during the early years of life and lessens gradually as a child grows older (Bloom, 1964; Butler, 1974; Nimnicht, 1972).

Further evidence for the above is given by White (1973) who goes so far as to say ". . . that the qualities that appear to distinguish competence are generally achieved by age three and it appears that the environmental factors up to that age are most critical in contributing to differences in competence . . ." (White, 1973, p. 156).

Several studies indicate the critical importance of the time between 12 and 36 months, when very powerful formative factors affect the child's intellectual and personality development (Gordon, 1971; Levenstein, 1971; Schaefer, 1971; White, 1973).

MacLeod (1973) and White (1973) stress certain characteristics of the developmental period between 12 and 36 months. In the developing locomobility stage, there is an increasing potential for self-injury, destructiveness, messiness and intrusion on the private domain of older siblings. In addition, this stage is characterized by the child's first attempts to use language and by negative behavior as he attempts to assert his autonomy. Also, during this period, the child encounters the beginnings of social pressure in his environment as he attempts to exercise his own will. The choices made by the caregivers in coping with the child at this time seem to be linked with the subsequent developments in the child. For example, choices about the amount of exploratory behavior to be allowed must be made. His clumsiness and lack of practical judgment mean that he is prone to personal injury and also likely to damage breakable household items. Some parents childproof the home, some follow the child everywhere, while others restrict the child's range of mobility or use various combinations of these techniques. It appears that the reason some children develop to a greater degree than others during this age period lies in the manner of response of the mother to the emergence of locomotor mobility in the child.

The consensus of many researchers appears to be that probably the best procedure is to design a physical world that is suited to nurturing the child's curiosity. For example, White (1973) states it should be full of small, manipulable, visually-detailed toys or small household items. It should contain apparatus to climb, materials for elementary gymnastics, and other items such as tricycles and

scooters to help develop large motor skills. The caregiver should encourage the child in almost all of his explorations, responding to and expanding on the expressed interest of the child. What families provide in the way of elaborate, clever and voluminous use of language will also favorably influence the development of the child during this period.

Bruner (1961), on the other hand, talks very strongly about early deprivation found in a family setting. He is concerned about this lack of stimulation robbing the child of the opportunity of constructing models of his environment and preventing the development of efficient strategies for evaluating information.

Since the early years in the child's development are so important, and because parents exert such a profound influence, there appears to be possible ramifications for the child whose mother will work throughout his formative years, and thus not be the primary caregiver for a large part of the child's waking hours.

PURPOSE OF THE STUDY

In a sense, all homes are learning centers for the development of intellectual, social, emotional, and physical aspects of the child. This growth or development may be stimulated by experiences structured through interactions with significant others or by self-guided learnings with the physical or material environment that is at the disposal of the child. The above may also hold true of those homes that have been selected, for whatever reasons, to be family day care homes.

Statistics indicate that a substantial number of children, approximately 85% of those in day care, are probably in some type of home or family day care (EPDA, 1973; Edmonton Journal, 1974; Status of Day Care, 1974). Since the quality of day care the child receives should compliment the socializing and cognitive developing experiences of the home, parents and society in general may need to determine if a child's developing competence is being provided for in the family day care setting. It is this central issue concerning the impact of a child's environment and experiences on his development which was the subject of the study.

The initial purpose of this exploratory study was to determine the relationship that might exist between the intellectual competence of each child and the opportunities each has had for environmental stimulation. Another purpose of the investigation was to determine which situations and which sources of a child's experiences and environments were most influential in defining the highly intellectual experiences. Finally, the investigation was to ascertain congruence between:

(a) the actual importance of intellectual experiences observed in a child's family day care setting, and

(b) the potential quality of experiences in that family day care home, as rated by professional social workers.

The social workers in giving the ratings attempted to indicate which family day care homes would provide the most stimulating environments. If these ratings do not correspond, this might indicate that the cognitive dimension was not provided for in the social worker's

selection criteria. A more detailed and tightly controlled study might then be designed to ascertain whatever differences were apparent and then to determine further objective criteria to be used in selection procedures.

RESEARCH QUESTIONS

In order to achieve the stated purposes of this study four research questions were investigated.

1. To what extent are children in family day care in Edmonton having experiences that contribute to their development of intellectual competence?

2. In relation to the situations investigated, which types are more influential in affecting a child's development of competence:

   (a) those in which the child is relating to his human environment, or

   (b) those in which he is involved with his non-human environment?

3. In the investigation, which sources of intellectually valuable experiences are affecting the child's development of intellectual competence:

   (a) the child's own active behavior, or

   (b) various environmental inputs?

4. In the selection of day care homes, does a correspondence exist between

   (a) the rankings of the subjects' observed intellectual experiences, and

(b) the ratings of potential experiences provided by family day care homes as determined by the social worker's selection criteria?

To investigate these questions it was necessary to observe children in naturalistic settings in order to evaluate the experiences of the children, the interactions of the children with their human environment, and the utilization of the material environment present. After surveying numerous instruments the HOME Scale was selected as the most appropriate instrument to meet the above criteria.

DEFINITION OF TERMS

Family Day Care: The care of a child outside of his own home, in another home whose caregiver is not related to the child. Generally the child is in this alternative home approximately eight to ten hours, certainly less than eighteen hours.

Family Day Care Home: In this study this term refers to the licensed, supervised Day Care Homes under the Edmonton City Department of Social Services, Day Care Branch.

Family Day Care Mother or Caregiver: The one who cares for children not her own in her home while the child's own parents are working. The number of children in her care is from one to six including her own children.

Environment: A set of physical or human elements in the external world which are connected with the child's experience and which may affect his development of competence either through composing a developmentally pertinent experience, or by making

such an experience more or less likely to occur (Carew, 1974).

Sources: The child's own active behaviors or various environmental inputs which lead to intellectual competence.

Situations: Those aspects in which the child relates to his human environment or those in which he is involved with his non-human environment.

Intellectual Competence: The ability to sense dissonance, to note discrepancies, to anticipate consequences, to deal with concepts, or to make interesting associations, in order to be able to cope very capably at any time with the problems which are met.

ASSUMPTIONS

In considering the findings from this research the following assumptions should be taken into consideration.

1. That it is possible to identify the dimensions of the environment and the aspects of the child's behavior in order to determine the extent to which the child is having experiences which contribute to his intellectual development.

2. [illegible] dimensions of the environment and the aspects of the child [illegible] can be observed and measured.

3. That [illegible] instrument used, selected aspects of the HOME Scale (Carew, 1974) [illegible] successfully measure which aspects and dimensions are consistent [illegible] in contributing to intellectual experiences.

4. That there was [illegible] between the population

used by Carew in connection with the Harvard Preschool Project and the selected Edmonton population.

5. That information collected from books, periodicals, observations and transcriptions will accurately represent the situation being investigated.

6. That language is considered to be one of the most important aspects of intellectual development.

LIMITATIONS

The following limitations will effect somewhat the results of the study.

1. The observer will not be concealed and thus her presence may have some effect on the child's behavior.

2. The day care mother may not behave in her usual manner when under observation and thus may react in such a way as to present a good impression.

3. There will probably be some unavoidable observer bias.

4. There is some conceptual bias in the HOME scale, i.e. there are value judgements implicit in the scale and in the specific definitions of terms.

5. Generalizability to other populations is limited because of the very small sample, but the findings may be generalized to the stated population.

6. This study is a description of only one developmental aspect of a child, intellectual competence, and the findings cannot be generalized to other developmental aspects such as social or

emotional development.

7. Amount of observation information available may not constitute a representative sample.

DESIGN OF THE STUDY

Children in their second and third years (12 to 36 months) from licensed and supervised family day care homes in Edmonton were the population selected for this study. The specific sample included nine children within this age range selected by the Family Day Care Director and professional social workers in the Edmonton Department of Social Services, in a way which they believed to represent a range of those providing excellent environmental stimulation to those providing minimal developmental activities.

These children from the nine selected family day care homes were observed five times in their family day care settings, using selected aspects of the HOME Scale developed by Jean Carew in connection with the Harvard Preschool Project (Carew, 1974). Each observation consisted of three consecutive ten minute observation records with a ten minute break between each. Data for each observation were recorded on a small portable tape recorder and later transcribed and coded. The basic coding unit is composed of the duration of this interaction, the interactions with different aspects of the child's experience and environment, and the subsequent judgement of the activity dimension which is used to determine the intellectual development the child is experiencing or not experiencing.

Before the actual observations were schedule and executed,

a pilot study was conducted on two subjects who were of a similar age to those in the study but not included in the original population. This pilot study was for the specific purpose of training the paid observer how to make detailed, timed observations on the tape recorder. In addition, two qualified individuals were trained by the observer in the different aspects of coding the transcribed data, so that inter-rater reliability could be determined. The reliability for the coding procedures was found to be above .90.

All data were recorded on tape and transcribed. Later the data were coded and analyzed by the investigator, using the appropriate, selected dimensions of the HOME Scale.

SIGNIFICANCE OF THE STUDY

The findings of this exploratory study of children in family day care homes may be helpful to those involved with the daily care of children in several ways. It may be utilized, in connection with other criteria, to assist in the selection of future day care homes. In addition the findings may have some contribution to make in assisting social workers and others who visit family day care homes on a supportive and supervisory basis.

The information from this study also may be of practical value to the social workers as she confers with parents about the cognitive development of the child under her supervision. The findings may also serve as some baseline data for training of home visitors and for the organization of home visiting programs. Hopefully, it will make more apparent to those concerned with family

day care that there is a need for further studies in family day care which is becoming increasingly needed and utilized, but about which there is such a small body of knowledge.

SUMMARY OF THE CHAPTER

This chapter has provided an introduction and background to the problem of this study, a statement of the general purpose, the specific research questions for the study, and a brief outline of the procedures that were followed in the investigation.

CHAPTER II

REVIEW OF RELATED LITERATURE

Literature relevant to the investigation is surveyed in this chapter in the following order. First, there is a review of studies that propose to investigate the role of the environments in the developing competence of children 12 to 36 months of age. The second section reports findings from the literature describing the role of family day care in developing competence of the children in their care. Next, competence is defined with emphasis on the importance of intellectual competence. Finally, the literature relating to the research technique of systematic observations is reviewed.

DEVELOPMENT OF INTELLECTUAL COMPETENCE IN EARLY CHILDHOOD

Since the early 1960's there has been a new awakening of interest in Early Childhood Education, and attention is being directed to research which was carried out as early as the 1930's and 1940's. Piaget's theories, developed in the early 1920's, were given American recognition only in the late 1950's when researchers became concerned with the cognitive and affective needs of young children (Bronfenbrenner, 1958; Hunt, 1961; White, 1959). The need of working mothers for day care and the "War on Poverty" gave impetus to research into the possibilities for optimal child care and intervention programs (Deutsch, 1963; Gordon, 1965; Gray, 1965; Hess and Shipman, 1965). From the resulting evidence and conviction that the early

years of childhood might be the critical point in the poverty cycle, the massive compensatory education movement labelled Head Start developed.

As a result of the evaluations of Head Start, conducted by such researchers as Cercerilli (1970), Gray (1968), Shiver (1967), and Weikart (1967), a number of issues and concerns have arise. For example, the scientific issue of timing is very important. This concept centers around the provision of crucial developmental experiences at the optimum point in a child's development, and recognizes the apparent futility of some later attempts made to compensate for missed experiences (Ainsworth, 1972). Widely respected and internationally known educators such as Gordon (1971), Schaefer (1973), and White (1973), say that the child's education should begin prior to 15 months of age. Schaefer (1973) further states that this development of cognitive ability during the first year of life can influence the child's later intellectual development.

Other issues regarding the optimal learning environment revolve around the nature of the content, the methodology, and the interactions of the subjects (ECE, 1972). Alternative programs, situations, and experiences are being sought to cope with questions regarding the nature of the specific experiences which will provide the best encounters for individual children in their global development.

Years of Highest Impact

Bloom (1964) and Hunt (1961) found that the most rapid developmental changes were occurring during the first three years of a

child's life. Since then, other reseaxchers have undertaken studies in an attempt to validate the necessity of focusing attention on children from 12 to 36 months of age (Gordon, 1971; Levenstein, 1971; Schaefer, 1971). In addition, through longitudinal studies in the Harvard Preschool Project, White (1973) came to the conclusion that, under the variety of early rearing conditions currently found in our North American homes, the development of educability and overall competence first becomes manifest sometime during the second year of life and becomes substantial, in many cases, by age three.

Caldwell (1967) emphasized in her work that the first three years of life represent a critical period for the priming of cognitive development with the experiences of this period exerting permanent influence upon the developing child. Further studies conducted by Schaefer (1969, 1970) found that schools educate at the level to which the family and community have initially developed the child's skills by age three.

Summary

A number of well respected educators have started to emphasize the period between 12 and 36 months of age as a crucial time in the young child's development of intellectual competence. Because it may not be possible to develop some of the important concepts later by remediation, more attention must be placed on the child's optimal development during this critical early period.

ROLE OF THE ENVIRONMENTS

In transactions with a stimulating environment, a child has the opportunity to be involved in valuable intellectual experiences. To assure optimal development for the child, a sound theoretical background and specific knowledge of what constitutes the best environment for the child is necessary on the part of the adult interactor. The environment consists, not only of the non-human material objects, but of the child's human contacts and interactions as well.

Material Environment

In the development of the HOME Scale, Carew (1974) found that the material objects utilized by the child could be classified in an hierarchical order and grouped according to whether they could potentially provide highly intellectual, moderately intellectual, or non-intellectual experiences.

Levenstein (1971) concluded from her studies that the physical environment, consisting of toys and the other manipulative items, may have powerfully stimulating inputs for a child's development. With the same premise of the importance of material objects, Nimnicht (1971) designed a toy lending library to provide toys to teach specific fundamental concepts and skills and to promote problem-solving techniques. In evaluating the selection of toys, first importance was given to interest and second to mastery. Other researchers also concluded that the toys, household items, and other concrete materials with which a child interacts, should be autotelic or self-rewarding (Gordon, 1971; Nimnicht, 1970; Schaefer, 1970; White, 1973). Vygotsky

(1967) discusses the important role of objects used in symbolic play and considers them to be the basic implements which make play possible by helping the child make a transition from the world of play to the world of reality. Less directly, Piaget (1952) also sees manipulation of materials and objects as important in gaining information which, at a later stage, becomes a foundation for the child's intellectual development. From the standpoint of cognitive development, Bruner (1966) and Kamaii (1973) point out the increased opportunity there will be for the child to move freely, to act upon and manipulate things of his environment, to be curious, and to explore and experiment.

Gilmore (1965) attempted to study the problem of what would happen if, owing to external circumstances, the sensory motor stage was partly inhibited and the child had relatively little opportunity to be active in the kind of manipulative exploration which in Piaget's scheme invariably precedes formal thought. He found that, for a child so deprived, fewer abilities and concepts would remain available to him.

Levenstein (1968) says it appears that there is a need for an awareness of toys and household items which can be utilized for extending the concepts of a child. However, just the exposure of a child to potentially stimulating materials does not guarantee that the child, in interactions with these materials, will be engaged in intellectually valuable experiences. Palmer (1973) reports that the young children with the poorest cognitive development can come from over-stimulating homes, mainly those which are noisy and over active.

Wachs (1967) came to the conclusion that there is more advantage in a child's involvement in a high level of valuable experiences than there is in the mere provision of many materials with much random activity. This suggests that stimulation is not a unitary dimension in a child's development.

Summary

Research indicates that the material environment is very important because of the potential stimulation it provides. However, this environment should not be expected to provide the only opportunities for a child's experiences and other environmental resources must be utilized to ensure that the child receives support and stimulation to help him in his development of competence.

Human Environment

A stimulating material environment is very important for providing valuable learning experiences for a child, but perhaps its major importance lies in its utilization to support the relationship between the child and his human environment. Keister (1970) found that a child accomplished his most significant learning in an environment which afforded stimulation to all the senses. This environment changed often but not too frequently, and involved talking, showing, explaining, naming, reading, and demonstrating how things work, which were important elements of the adult-child interactions.

Carew's (1974) research shows that a child's own behavior and experience in interacting with materials can produce intellectually valuable experiences, but she also points out that a higher level of

experience is usually attained if the child is able not only to interact with the potentially stimulating materials, but to have an interested adult with effective mediating skills interacting with him in the utilization of the available toys and household items to further his mastery skills and concept formation. Many other studies have been undertaken to show that adult-guided stimulation for the very young, as opposed to unguided and self-guided exploratory learning, produces higher levels of learning and adjustment (Fowler, 1965; Robinson, 1968; Strodbeck, 1968; Thompson, 1944; White, 1959).

The earliest forms of intellectual experiences that are correlated with test performance at 3 years of age or earlier are experiences in which the child interacts with another person (Carew, 1974). In addition, the interactor's behavior creates or helps to create the intellectual climate to stimulate the child (Gordon, 1971; Hess, 1968; Shaw, 1969). When the interactor is someone to whom the child is emotionally attached, the child will come to value and engage in activities that this significant other prefers. For example, if the child's significant other always plays physical sports with him and never chooses to read a book to him, the child will come to understand this other person's systems of values in his own self-directed activities (White, 1975).

Language Development

In the hierarchically ranked HOME Scale, Carew (1974) has placed language development as one of the most valuable intellectual activities in which a child can engage. Numerous other theorists have attested to the fact that language development is highly

correlated with a high intellectual attainment and other major developmental gains (Forrester, 1971; Fowler, 1969; Gray, 1967; Levenstein, 1971; Shaw, 1969). In addition, White (1975) maintains that a child's intelligence quotient, once he gets to be 3 or 4 years of age, can be predicted with reasonable accuracy from a reliable assessment of his language skills.

When a mother is aware of the importance of language she can usually find many ways to teach vocabulary and expansions of the language to her children in a relaxed way, using everyday situations (Cazden, 1968; Hess, 1968; Schaefer, 1970; Shaw, 1969; Tough, 1974). For example, Murphy (1968) pointed out to parents that they can begin to influence language development in their child by talking to him. This communication would involve such activities as labelling concrete objects and pictures, talking about experiences while they are happening, recalling events, talking about plans, listening to what a child says, and encouraging conversation and questions from the child. Further, Shaw (1969) says it is useful to speak distinctly and appropriately because researchers have established that a child learns to put sentences together in the way he hears them.

Levenstein (1969) chose about a dozen books and a dozen toys that were, in her judgement, potentially valuable stimulus material and could be used to promote verbal interaction between a parent and child. She then took these books and toys into homes, demonstrated to the mothers how they could be used, had the parents try them under the supervision of the demonstrator, and then left them with the mother. She reported that after 32 visits over a seven month period,

she had a 17 point I.Q. gain in various aspects of development in her child population. Palmer (1973) also found that what a child is taught is not so important as the conditions under which he is taught. These findings put the emphasis specifically on the nature of the adult-child relationship.

Examination of research done by Bronfenbrenner (1972) indicates that, in the early years of life, the key element is the involvement of parent and child in verbal interactions around a cognitively challenging task. The above statement seems to be a most appropriate summary of the optimal conditions for the intellectual development of the child from 12 to 36 months of age. In order to provide the most valuable experiences for the child, the non-human or material environment must be at the disposal of an adult who is aware, flexible, willing and able to interact with the child.

Summary

Research findings point out that the intellectual experience of the child, during the period from 12 to 36 months of age, appears to be furthered significantly through adult-child interactions. The studies reveal that it is through making provisions for encouraging and supporting interactions with the child's significant others, and by structuring a stimulating environment, that a child's global development can be expanded. As the child is developing he is learning to cope with these various interpersonal relationships, and through succeeding in this endeavour can eventually gain control over, and manipulate, his environment.

ROLE OF FAMILY DAY CARE IN DEVELOPING COMPETENCE

An article in the Edmonton Journal (December 21, 1974) states that working mothers in Canada have more than 600,000 children under 6 years of age in some kind of day care. It is reported in "Status of Day Care in Canada" (1973), that less than 2% of children under 3 years of age are enrolled in day care centers by working mothers. The remaining 98% of these children are assumed to be with relatives or in family day care. With statistics indicating that there is such a great number of children in some type of home care, it is important to know whether caregivers are providing for the development of intellectual competence during the years of highest impact. Keyserling (1971) reports that only about 5% of these homes have some measure of control through licensing and supervision. In addition, it appears that only a minute amount of research has been undertaken in this area of family day care.

Importance of a Home Like Situation

Many researchers believe that the parents and the home are potentially the most effective vehicles for optimal development of the young child (Ainsworth, 1972; Bronfenbrenner, 1974; White, 1973). If, as suggested by statistics, such a high percentage of children in care are in family day care, then the quality of this care will take its place, along with the quality of socializing experiences and cognitive development in the home, in determining the child's global development (Ottawa Demonstration Project, 1972; Rabinowitz, 1973; Ziglar, 1974).

Sale (1973) and Zamoff (1973) discuss the advantages of family day care for child development. This type of care is able to provide an intimate home setting located close to, or in, the neighborhood of the family needing child care. Cross age groupings may be provided for, thus accommodating all the siblings of a family. There can be a continuity in learning experiences from one setting to another and, owing to the likelihood of close proximity to the child's own home, there will probably be little discrepancy in value systems. In addition, a child could get a good deal of individual attention in this home-like setting.

White (1975) also found that family day care might be very beneficial to children in care. He said the only place one would be likely to get a better set of early experiences than those provided by the child's own family would be in a family day care operation. He pointed out that this is, of course, dependent on the caregiver being one of that minority group of parents who have done an unusually good job with her own children in the past.

Another issue arising is concerned with whether a family day care setting or a center program provides the greater opportunity for optimal development of the child under 3 years of age. In 1973, Prescott conducted a study which involved observations of samples of children in program structures classified by her as either open group programs as opposed to the closed family day care situations. She found that quality family day care homes offer most of the following components essential to individualized care: flexibility, high adult interaction, opportunities for sensory input, and creative exploration.

These she found especially necessary for a child up to 3 years of age. Available data also suggest that part-time separation or even repeated separation from the mother may not necessarily be harmful. However, to be beneficial, the surrogate program should provide the child with the opportunity for responsive interaction with a relatively stable caregiver who pays attention to him beyond the satisfaction of his physical needs (Ainsworth, 1972; Caldwell and Richmond, 1968; Keister, 1970).

Keyserling (1972) reported that a study of day care facilities carried on by volunteer interviewers found that parents who used center care were better satisfied with the care given than those who used family care. The comments of the parents suggested that an important factor in their satisfaction was the cognitive component provided in the center's program. On the other hand, in another study with over 360 mothers, Willner (1967) found that very few natural mothers mentioned intellectual stimulation as an advantage of family day care.

In a recent and well controlled study by Handler (1974), which involved parents using day care, she suggests that convenience may be the main reason for choosing a particular center or day care home. Most parents, she finds, view the primary responsibility of the center or home to be one of meeting the parent's needs rather than providing a service to children. On the whole, Keyserling (1971) states that care is not likely to be much better than the expectations, knowledgeability, and practices of the potential consumer. If the parent is more concerned with the services meeting her own

needs rather than the childs, or if she does not realize the impact of the environment on the child, then she is not going to be overly concerned by the lack of cognitive stimulation provided to the child.

Summary

It appears from these reports that family day care settings can provide some very definite advantages for a child. Especially useful is the potential home-like setting, affectionate and responsive human interaction, and individual attention available to the child. Since there is such a large percentage of children in day care that are family-type situations, more emphasis must be given to investigations of the role of family day care in developing the child's competence.

DEFINITION OF INTELLECTUAL COMPETENCE

Jean Carew (1974) in the Harvard Preschool Project used Robert White's (1959) definition of competence. He used the word "competence" to describe the learned ability of the child to conduct effective transactions with the environment. Burton White (1973) included in his descriptions of the competent child at 3 years of age, both social and intellectual characteristics. He verified from longitudinal studies, that children who have high intellectual competence have experienced significantly more verbal, spatial, expressive, and other such intellectual experiences than less competent children.

Butler (1974) found that a child displays competence in using such skills as evaluating, selecting, judging, organizing future

experiences, and enhancing and maintaining his view. In addition, Palmer (1973) emphasizes the child's need to process information. Here the environmental stimulation must be organized by the child in order for him to make a response to others.

According to various researchers (Deutsch, 1968; Keister, 1970; Murphy, 1971; Zigler, 1970), the extending of a child's mind involves numerous cognitive functions. Examples of these functions include differentiation between various sense modalities, classification and conservation, motor-development activities, exploratory activities, problem solving, and clarification of concepts through play. High cognitive ability is observed in children who are developing in an environment where they are exposed to a variety of objects, challenges, and opportunities to exercise their faculties. These children function best in situations where they observe, model, and share the problem-solving behavior of their immediate families or intimate caregivers and associates (Bishop, 1974; Carew, 1974; Butler, 1974).

In conclusion, the important interactions with significant others should be utilized to assist the child in coping with the environment in which he finds himself. The child's coping behaviors and manipulating and controlling ability expands as he moves in the direction of intellectual competence.

OBSERVATIONAL SYSTEMS

Numerous instruments were surveyed for possible utilization in measuring adult-child interactions in a family day care setting.

The studies using such instruments involved environments ranging from those concerned with completely unstructured situations in the home (Barker, 1955) to those in a laboratory with highly structured settings (Hess and Shipman, 1967).

Methodological Issues

Lytton (1971) reports that the control of stimuli is at a minimum in naturalistic observation or completely unstructured situations. However, conditions can be standardized to some extent. Baumrind (1967) focused on certain behaviors at certain times of the day. Patterson and Ried (1969) used coded categories to show how to structure the observation record. Further, Baumrind (1968) pointed out that rigid control of stimuli in the experimental situation could give only an illusory advantage. More important, the factor that could be most in doubt is the generalizability from the strictly defined laboratory conditions to the natural conditions in which the child is developing. Published studies show that both structured and unstructured situations have been used successfully.

The amount and kind of data recorded is also very varied. The specimen record, a method of recording behavior reported by Barker (1955), Wright (1967), and Carew (1974), attempts to provide a complete record of the behavior observed. This method is able to supply a great amount of information. However, Lytton (1971) makes the statement that the usefulness of the raw data depends very much on its analysis and interpretation.

Therefore it would seem that observations of behavior carried out in a naturalistic setting can be exceedingly useful for supplying

a great deal of information which can later be interpreted for use.

Naturalistic Observations in the Home

Lytton (1971) has drawn the conclusion from surveying many studies that the strong point of naturalistic observation is the immediacy and first-hand nature of the data. The chief objection to this method is that the presence of the observer changes the subject's behavior. This change, brought about by the presence of an observer, has been tested by researchers such as Patterson (1969), Harris (1969), and Schulman (1962). Interestingly, it has been found that the behavior of the young children is less affected by the presence of an observer than is the behavior of the adults. Lytton (1971) also says that most investigators would claim that the irreducible amount of distortion occurring because of an observer's presence is not sufficient to invalidate the data.

Admittedly there are certain difficulties and problems with parents when observing in the home. However, there has been a sizable number of very successful investigations that have employed observations in the home. These studies effectively demonstrate that co-operation of parents can be obtained (Caldwell, 1968; Carew, 1974; Schoggen, 1964; Yarrow, 1963).

Baumrind (1968) suggests that a minimum of two observations is essential, and that the more visits the more natural the behavior of the parents. She also contends that lack of co-operation or faked behavior can usually be resolved in some measure. Moss (1965) suggests that the investigator stress the central position of the child and de-emphasize the role of the mother. Baumrind (1967) attempted to

reduce any unnatural behavior by stating that the "experts" do not know what behaviors are most important in mother-child interactions and that the kinds of observations undertaken by her in her studies would help to answer such questions.

It would appear then that researchers suggest that the limitations of naturalistic observations do not detract from their usefulness.

Observation Systems

If an observation system is to be used with a young child, then observers and raters must have a sound knowledge of early childhood development in order to administer or score it (Amidon, 1971; Stallings, 1974; Withall, 1961). In addition, it is pointed out in several anthologies of behavioral measurements that the selection of observers and raters is the first point at which to improve the reliability ratings. Raters however, cannot give valid information unless they know the content of a subject well (Boyer, 1973; Burros, 1972; Johnson, 1971).

Simon (1974) points out that, even when observers with a thorough knowledge of a field observe an event or situation, some happenings are noticed and some are ignored. If errors in observing were merely random omissions they would be unimportant, but observers make systematic errors, overemphasizing some types of happenings and failing to report others. Thus definite categories of actions need to be selected. The intent in devising these descriptive categories is to minimize the degree of inference by an observer in recording the interaction between an adult and child.

Instruments have been created and/or used because they seem compatible with the assumptions underlying an explicit or implicit theory being investigated. Effective selection of an appropriate instrument requires that the researchers delve into the conceptual and empirical bases of the instrument in order to estimate the degree of fit between the constructs actually tapped and those conceived of as important to the study at hand (McDaniel, 1967; Wylie, 1961).

It would appear then that those observing in a naturalistic setting need to have a sound knowledge of the area being investigated, and an understanding of the underlying assumptions of the instrument. With this theoretical background, effective observations can be conducted.

Selection of an Appropriate Instrument

After a careful study of the assumptions and theory being investigated, it was concluded that the instrument which would best fit the situation in this study was the HOME Scale developed by Jean Carew (1974). The HOME Scale deals specifically with systematic observations of such aspects as behavior, sources, interactions, and environments which contribute to the intellectual development of children from 12 to 36 months of age. This instrument grew out of a "natural experiment," the major purpose of which was to describe in detail the everyday transactions with the environment of a group of 23 one-year-olds from a variety of social backgrounds. These children were observed longitudinally in their own homes and neighbourhoods at four intervals beginning at the age of 12 months and

continuing to age 33 months. Each subject was visited for about one hour on three to five separate occasions during each four-month period and the total number of visits ranged from 11 to 19.

The observed experiences were categorized in terms of the sources and situations influencing the child's intellectually valuable experiences. The sources were either the child's own active behaviors or the various environmental imputs. The situations referred to were those in which the child was relating to either his human or his non-human environment. Carew (1974) also traced the relationships of intellectual experiences occurring in different source or situation combinations to the child's performance on tests of general intellectual development, receptive language abilities, and spatial abilities. This correlational data was designed to show what types of experiences were intellectually valuable to the young child.

Carew (1974) therefore concluded from the observation data that one could make a distinction between intellectual experiences and other experiences. Evidence for this was that intellectual experiences were positively correlated with scores on tests of intellectual competence while other types of experiences were not. Further, intellectual experiences observed at earlier periods in the child's life predicted later test scores in much the same way that early test performance predicts later test performance. From these findings Carew et al (1974) constructed the HOME Scale, from which a child who is experiencing a certain proportion of highly intellectual experiences can be predicted to be either intellectually competent or not competent at 3 years of age.

SUMMARY OF THE CHAPTER

A summary of the literature surveyed in this chapter revealed the following significant findings about conditions affecting a child's development of intellectual competence.

1. The quality of early interpersonal relationships with the child's significant others, and interactions with a stimulating physical environment can influence a young child's developing competence.

2. Observation of the child's global development during the period of 12 to 36 months of age, can provide data to predict his competence in coping with his environments when he reaches 3 years of age.

3. The material environment, although very important because of its potential for stimulating learning experiences, is not a unitary dimension in that it can sustain development by itself. Perhaps its major importance lies in the utilization of it to support the relationship between the child and his human environment.

4. The importance of the quality of the child's interactions with his significant others is stressed. This interaction should succeed in providing the encouragement and support that a child needs in order to learn to cope with the various interpersonal relationships, to approach, manipulate, and explore his surroundings with confidence, and eventually to gain appropriate control over this environment.

5. Family day care settings can provide definite advantages for a child because of their potentially valuable home-like situations.

These situations are most beneficial when they provide opportunities for responsive human interaction, specifically given individual attention, and environmental stimulation.

6. A large percentage of children in day care are in family day care. Little emphasis has been given to the role of family day care in developing the child's competence. There is need to investigate further the ramifications of this role in a child's global development.

7. Although not presently researched to any extent, intellectual competence is one of the most important dimensions in a child's total development of competence.

8. Language development is one of the most valuable activities in which a child can be engaged for the development of intellectual competence.

9. Observational systems appear to be becoming one of the most useful and acceptable ways of collecting data in naturalistic settings.

CHAPTER III

PROCEDURES FOR GATHERING AND ANALYZING DATA

The chapter contains a description of the procedures employed in order to answer the following specific questions.

1. What percentages of highly intellectual experiences are the children, of 12 to 36 months of age, having in their nine selected family day care settings?

2. In which of the two environmental situations, that are identified as either human or physical, is the larger percentage of highly intellectual experiences observed in these children of 12 to 36 months of age?

3. In which of the two developmental sources, identified as either environmental sources or self-selected activities, is the larger percentage of highly intellectual experiences observed in these children aged from 12 to 36 months?

4. What correspondence exists between

   (a) the rankings of subjects' highly intellectual experiences determined by the HOME Scale, and

   (b) the ratings of potential intellectual experiences provided by family day care settings as predicted by the criteria of professional social workers?

Included also in the chapter is a description of the HOME Scale (Carew, 1974), which is the instrument selected to measure the intellectual experiences. In addition, the sampling procedures are

discussed, the pilot study is described, and the treatment of the data is delineated.

POPULATION AND SAMPLE

This study is concerned with the 44 children of from 12 to 36 months of age in licensed and supervised family day care homes in the City of Edmonton, as of May 1, 1975. A social worker, for the purpose of licensing these homes, visited the applicants in order to inform them of the agency's expectations. In this visit the social worker informed them of this agency's expectations of them, in the role of licensed family day care caregivers. Following this visit, a decision was made as to whether the home was suitable for child placement. The decision was dependent upon such criteria as the number of children present, health and safety features, and the presence of basic care facilities. In addition, two character references were supplied by the caregiver.

When the family day care caregiver has received the formal license, then a professional social worker is assigned to visit that particular home approximately once a month. At these times, the social worker discusses with the caregiver any concerns she may have regarding the child or the parent, and assists in any other consultive or supportive way necessary. The caregiver is paid directly by the City of Edmonton and thus is assured of her money if, for a variety of reasons, the child's family fails to meet their commitment. Interviews with caregivers indicated that such a guarantee was a major reason for applying to the city for a license.

Since the study was descriptive and exploratory, a sample of nine subjects was chosen. This sample included approximately 20% of the total population of 44 children, from 12 to 36 months of age, in the 44 licensed family day care homes in Edmonton at the time of the study. The sample was selected by a panel of four of the professional workers who were involved with these licensed family day care homes. The panel was nominated by the Director of Edmonton Family Day Care Services. In the selection, these social workers chose nine children, three in each of the three general developmental levels. Three of the children were assumed to be in a level providing excellent family day care, three were considered as being in average family day care settings, and three were in a level which the social workers considered was providing only minimal stimulation.

A stratified sample of nine subjects was chosen because it had some definite advantages in this study over a simple random selection. One particularly important advantage for this selection was that, when employing a small sample, a random selection is likely to exclude such necessary characteristics as an example in each classification of the population. In addition, the stratified sample was desirable for a variety of economic and time considerations. A stratified sample, as utilized in this study, also insured an increased efficiency in the estimation of tendencies in the population (Neale and Libert, 1973). In addition, since age was the only variable controlled, the stratified sampling was again advantageous because the subjects were chosen on the basis of this age characteristic (Selltiz et al, 1959).

Although the selected sample was small in number, it did represent 20% of the total population of licensed and supervised family day care homes which were caring for children of 12 to 36 months of age in the City of Edmonton. Owing to the fact that the children were all in the same age range it is unlikely that many more different examples of behavior would have been gathered by observing a greater percentage of the population. The ages of the subjects in this study corresponded to the ages of the children in Carew's (1974) research. In the present study age was the only controlled variable.

The family day care caregivers were approached initially by the social workers who introduced the project to them and who also introduced the caregiver to the observer. This arrangement proved very valuable for establishing good rapport. The observer "enjoyed" the acceptance and co-operation of the family day care caregivers on all the visits.

INSTRUMENTATION AND OBSERVATION

It was concluded, after an exhaustive survey of approximately 500 behavioral instruments such as Marschak (1960), Schaefer and Bayley (1963), Caldwell (1968), and Douglas et al. (1968), that the HOME Scale (Carew, 1974), was the most appropriate instrument for use in the present study. This was the only instrument surveyed that could be utilized to answer all of the four research questions that have been stated. The scale had been specifically designed to observe children of 12 to 36 months of age in their everyday environment. With this instrument, it was possible to assess the self-directed

activities of the child, and to ascertain which aspects of the human and non-human environments are important for the child's development of intellectual competence.

Since the scale was developed in connection with the Harvard Preschool Project in the United States by Carew et al. (1974), it might not prove to be entirely appropriate for use in a Canadian setting. However the basic categories of child behavior, human interactions, and utilization of the material environment appear from the literature to be very generalizable.

The scale is divided into three major sections which include the child's own self-selected behaviors or activities, the human environment with which he interacts, and the material environment that provides him with, or deprives him of, stimulating experiences. Following is a description of the categories and dimensions of the Scale.

The child's own behavioral experiences which is the first component of the HOME Scale is presented in five dimensions. The first and focal dimension is the activity dimension which refers to the observable experiences in which the child is involved. Of the 21 categories of activities in the HOME Scale, only 15 of these were considered relevant to intellectual development, and so were those selected to use in the observations for this investigation. These categories are grouped hierarchically, in three clusters, according to their presumed value for intellectual development.

Cluster I activities are those presumed likely to lead to intellectual gain for the child and are labelled highly intellectual

activities. They include such activities as developing language ability, spatial and perceptual learning, concrete reasoning, and acquiring executive skills.

The activities in Cluster II arise from situations which indicate only a moderate likelihood of intellectual gain. These include such activities as exploring household items, playing with toys, exploring nature and gaining general information.

Cluster III activities are those which have little likelihood of promoting intellectual learnings for the child and are labelled non-intellectual activities. Activities in this cluster consist of those involving basic care, learning large motor skills, and any other activities which cannot be classified in Clusters I and II.

The second dimension in the first component of the HOME Scale describes the types of experiences. These types classify the kind of participation of the child in the experience.

The remaining four dimensions are designated as Task Mode, Task Level, Task Purpose, and Success. These refer respectively to the type of behavior, the quality or complexity of the behavior, the child's intention for the behavior and the child's success at influencing another person or manipulating materials when he tries to do so.

The second component of the three in the HOME Scale is the Human Environment. This consists of six dimensions which describe the behavior of the other person who interacts with the child.

The first dimension in this component is the initiation

dimension which indicates whether the child himself or another person has initiated the activity. This is followed by the person dimension which indicates the person with whom the child interacts or to whom the child attends. The third dimension indicates this other person's attitude concerning the child's behavior and is called the encouragement index. This index is used only when an interaction is taking place between the child-subject and another person. The fourth dimension is the interaction technique which describes the behavior of the other person who interacts with the child. The last two dimensions of the human interaction component are the compliance index and the verbal index. The former is the child's response to a directive or restrictive technique, while the latter indicates the language production and stimulation present in an experience.

The third component of the scale refers to the utilization of the material environment. Its four dimensions include the room or area occupied by the child, the restrictions placed upon the child's physical movements, the quality of the object, and the size and portability of the object. Following is an outline of the HOME Scale. Part I shows the dimensions relating to the child's behavior. Part II is organized under the dimensions by which the human environment is measured, and Part III includes the dimensions which measure how the material environment is utilized.

HOME SCALE

Dimensions of Environment and Experience

I. Experience:

1. Activity
2. Type of Experience
3. Mode
4. Level, Quality or Complexity of Mode
5. Purpose of Mode

II. Human Environment:

6. Initiation
7. Person
8. Encouragement Index
9. Interaction Technique
10. Compliance Index
11. Verbal Index

III. Material Environment:

12. Room or Area
13. Restriction
14. Object Quality
15. Object Size

A synthesis of the HOME Scale is found in Appendix A.

An examination of the data of these three components of the HOME Scale provides the basis for determining the value of the child's own self-directed activities or his environmental behaviors. From a judgement of the values attributed to each component, the activity dimension is coded.

In coding the activity dimension, three sets of criteria were used to judge the likelihood of intellectual gain. The first set of criteria is that dealing with the child's own behavior. If the quality of the child's behavior indicates that the experience contributes highly to promoting intellectual development, the activity

dimension can then be coded immediately. If the child's behavior is passive, other inputs into the situation are considered. If the child is interacting with someone else or is observing another person's actions then the behavior of another individual may warrant the designation of an intellectually valuable activity and the judgement is made on that basis. Finally the design characteristics of objects the child may be using may indicate the likelihood of intellectual gain. In all situations the coder assigns the highest possible "intellectual" value to the child's experience.

Thus the scoring of an activity is based on a consideration of several observable components. Those falling into the higher clusters are judged to be intellectually valuable to the child as they provide him with a clear opportunity to develop his intellectual competence.

The activity dimension, although a major part of the sc[illegible] falls within Part I of the child's experience component. The fact that this is not a separate part of the scale may be a criticism of the HOME Scale.

Collection of Data

The nine children, aged from 12 to 36 months, were each observed a total of five times in their family day care settings. An observation consisted of 60 units of 15 seconds each divided into three 10 minute periods with 10 minute intervals between each period. (See Appendix C.) In this way a time sampling method of collecting data was followed.

These observations were completed in May and June of 1975. Thirty-three, or slightly more than 2/3 of the observations for each

child, were carried out by a paid observer who had just graduated with a Bachelor of Education in Elementary Education. This observer had previous training in general observational procedures and a considerable amount of practical experience with children. The training of the paid observer for this study included providing experiences with the major procedures that would be important for carrying out the observations, and for learning the technical uses of such equipment as the cassette recorder and the stop watch. The paid observer's instruction in behavioral observations was carried out during the pilot study. In order to eliminate as much observer bias as possible, the observer did not have access to the instrument with its specific categories of behavior but taped the exact behaviors and interactions she observed without attempting to classify them.

The remaining 1/3 of the observations on each child were completed by the researcher. By observing each child for at least one visit and comparing the content and extent of the observations with those carried out by the paid observer, it was possible to note any discrepancies that might have occurred in the observations of a specific child's behaviors.

All the observations were taped. The child was viewed in his setting for 15 seconds and then, for the next 15 seconds, an audio tape was made of the behaviors that were observed. Sixty of these 15-second units were completed for each observation. A random sample of the taped observations was reviewed by the researcher as the observations were in progress in order to check for such

problems as observer bias and the maintenance of the timing units while taping. The value of the training period during the pilot study, and the integrity of the observer ensured highly consistent and objective observations. The classification of the raw observational data, which were recorded both by hand and on tape, into the categories provided by the HOME Scale was carried out by the researcher.

As previously stated, the initial introduction of the observer into a family day care home was made by the social worker in charge of that particular home. On the initial visit, a schedule for the five observations was organized. An exact schedule was not set out as it was hoped that as natural a setting as possible could be observed with little previous preparation by the caregiver. Thus the observer planned to visit the family day care setting at various times and dates which were not to be made known to the caregiver. However, it was found that such informal scheduling proved to be rather futile. Frequently, for a variety of reasons, the child or the caregiver would not be present, and it was found that it was necessary to phone just before leaving for an observation to verify if both were available.

Coding Procedures

The values of most of the dimensions in the HOME Scale are ranked according to presumed significance for the child's development. In addition, as there were often several experiences which occurred in a single 15-second unit, an attempt was made to code only the experience which was developmentally most relevant. The

dimensions of the HOME Scale were coded according to the behavior of the child, the behavior of the person who interacted with the child, and the objects the child attended to within the context of the activity. From the coded information, a judgement was made as to which activity in the activity dimension was most relevant to the experience. Therefore, from the completely coded dimensions of the HOME Scale the data could be interpreted to answer the four stated research questions.

Validity and Reliability

The construct validity of the HOME Scale was ascertained through consultation with two experts in the field of early childhood education. Owing to the recent development of the HOME Scale further research into the validity of the scale has not been reported.

Two individuals in the field of early childhood education were coached by the investigator in the coding of samples of the transcribed data. This coding was done for the purpose of determining inter-rater reliability which was high, above .90.

PILOT STUDY

To become familiar with the practical application of the instrument, to standardize procedures, and to check observer reliability, a pilot study was conducted in two family day care homes in Edmonton, not supervised by the City of Edmonton Day Care Services. On the basis of recommendations from a professional in the field of early childhood education, these day care homes were judged to be better than average homes in caring for a child of from 12 to 36

months of age.

This study was conducted as a training session to help both the observer and the researcher to become familiar with handling the equipment, making detailed, timed observations on the tape recorder, and testing the instrument's applicability to a family day care setting.

DATA TREATMENT

The processing of scores obtained from the HOME Scale is described under the following appropriate subheadings.

Data Treatment for Research Question 1

The first concern of this study was to determine the extent to which this sampling of children in family day care in Edmonton were having experiences that contributed to their development of intellectual competence. To respond to the above question, several procedures were carried out. Each dimension of the HOME Scale was initially coded according to the appropriate designations as suggested by Carew (1974), and a judgement was made regarding the focal or activity dimension. From the total number of observed experiences and, using the information from the coded activity dimension, a percentage of the subject's highly intellectual experiences was calculated. Taking into account the age in months of each subject, the percentage of each subject's highly intellectual experiences was compared with norms found by Carew (1974). From the comparisons of these calculated percentages of highly intellectual experiences, a prediction was made regarding the intellectual competence of the child at 3 years of age.

This prediction was dependent upon the percentage of highly intellectual experiences in which a child was involved, as established by Carew (1974) in the HOME Scale.

Data Treatment for Research Question 2

The second question was devised to determine which of the two learning situations investigated was more important in affecting a child's development of intellectual competence:

(a) those in which the child is relating to his human environment, or

(b) those in which he is involved with his non-human or physical environment.

To examine this research question, the information gained from the coded data of the last two components of the HOME Scale was used. From the total number of each subject's observed experiences, percentages for each situation were calculated and comparisons made between the two situations.

Data Treatment for Research Question 3

This third question was devised to determine which provided the greater source of the highly intellectual experiences considered important in affecting the child's development of intellectual competence:

(a) the child's own active behaviors, or

(b) the various environmental inputs.

To deal with this third research question, data from all three categories of the HOME Scale were utilized in deciding whether

the child's own behaviors or his various environmental influences was the most important source of each highly intellectual experience. From all the observed highly intellectual experiences of each subject, the percentage of experiences attributed to each of the two sources was determined. Comparisons were then made between these two percentages to ascertain which was the greater and therefore, the source most likely to be affecting each child's intellectual development.

Data Treatment for Research Question 4

The fourth question attempted to determine the correspondence that existed between

(a) the ratings as determined by the subjects' observed intellectual experiences, and

(b) the ratings of potential experiences provided by family day care homes as determined by the social workers' selection criteria.

The percentages of highly intellectual experiences for each subject, as determined by an analysis of the data from the HOME Scale, were compared to norms obtained by Carew (1974). In order to make this comparison the percentages were used to place the subjects into one of the following three groups:

(a) Those who probably would be highly intellectually competent at three years of age,

(b) Those who would be of average competence,

(c) Those who would not be competent.

Each subject was also placed into one of three groups determined by the social workers' assumptions about whether each subject was

likely receiving excellent stimulation, average attention, or care that needed much improvement. A comparison was then made between the results of the two placements of the subjects in the three groups.

SUMMARY OF THE CHAPTER

This chapter described the procedures followed in gathering data for this study. These included the sampling procedures, the instrumentation, the pilot study, and the data treatment.

CHAPTER IV

FINDINGS OF THE STUDY

The purpose of this chapter is to present, analyze, and discuss the data derived from the use of selected aspects of Carew's (1974) HOME Scale in determining the degree to which the subjects in this study are developing intellectual competence. The first section of the chapter contains a comparison of the percentages of each subject's intellectually valuable experiences, as calculated from the HOME Scale, using the norms found by Carew (1974). In the second part of the chapter the data will be analyzed to determine whether the human or the material environment elicited the greater percentage of intellectual behaviors. The third part in the analysis of the data attempts to determine whether the experiential source or the environmental source of the child's developing intellectual competence contributes the larger percentage of highly intellectual experiences. In the final section of the chapter the degree of correspondence is found between the ratings of the subject's intellectual experiences using the HOME Scale, and the ratings of the family day care setting's potential for providing intellectual experiences as determined by the professional social worker's criteria.

INTELLECTUALLY VALUABLE EXPERIENCES

The initial section of this chapter discusses the percentage of highly intellectual experiences in which children are involved, in a family day care setting. The nine subjects of the selected sample were listed as S_1, S_2, S_3, . . . S_9, in rank order according to the percentages of their intellectually valuable experiences. These percentages were calculated from the raw scores obtained through an analysis of the data coded according to the HOME Scale. The activity dimension is the focal aspect of the scale and is coded by referring to the three major components of the scale, namely the child's experiences, the human environment, and the material environment. From the ratings on the activity dimension, the experiences are classified into three clusters, which are labelled highly intellectual, moderately intellectual or non-intellectual.

Table I shows the scores of the nine subjects ranked in descending order according to the proportions of highly intellectual experiences as calculated from the data of the HOME Scale. These ranged from S_1 with 37% of all observed experiences classified as highly intellectual, to S_9 with only 4% of all observed experiences judged as highly intellectual. Also recorded on the same table are the percentages of moderately intellectual experiences and non-intellectual experiences for each subject, determined in a similar manner from an analysis of the data from the HOME Scale, to show the balancing of distribution in the two other categories which are not the focus of the study.

The percentages of moderately intellectual experiences

TABLE I

Types of Intellectual Experiences of Subjects Ranked in Descending Order of Proportion of Highly Intellectual Experiences

Subject I.D.	Highly Intellectual Experiences	Moderately Intellectual Experiences	Non-Intellectual Experiences
S_1	.37*	.39	.24
S_2	.22	.55	.23
S_3	.21	.43	.36
S_4	.14	.35	.51
S_5	.12	.57	.31
S_6	.06	.59	.35
S_7	.05	.63	.32
S_8	.04	.63	.33
S_9	.04	.57	.39

* Proportion

ranged from S_8, with 63% of all observed experiences classified as moderately intellectual, to S_1, with 39% of all observed experiences judged as moderately intellectual. The table also shows that the percentages of non-intellectual experiences ranged from S_4 with 51% of all observed experiences classified as non-intellectual to S_2 with 23% of all observed experiences judged as non-intellectual.

Figure 1 is another visual representation of the subjects' highly intellectual experiences, moderately intellectual experiences, and non-intellectual experiences. In this graph the subjects are ranked according to age in months, in order to compare the differences between the percentages of each subject's highly intellectual experiences, moderately intellectual experiences and non-intellectual experiences. From the figure it may be observed that, as the ages of the children increased in months, there appeared to be a gradual increase in the number of highly intellectual experiences encountered by these older subjects. The two exceptions to this trend were S_7 and S_9. These two subjects who, according to Carew's norms, would not likely be competent at 3 years were the oldest children in this sample. According to Carew's findings, the period from 30 to 33 months is the time when the child who is potentially highly intellectually competent gains significantly more valuable experiences not only from interacting with others but, also, through his own behaviors. The child's own competent behavior however is dependent on a prior slow, cumulative process of interaction, with other people who have the time and skill to interact with him in intellectually stimulating ways. This rationale could suggest that perhaps S_7 and S_9 did not

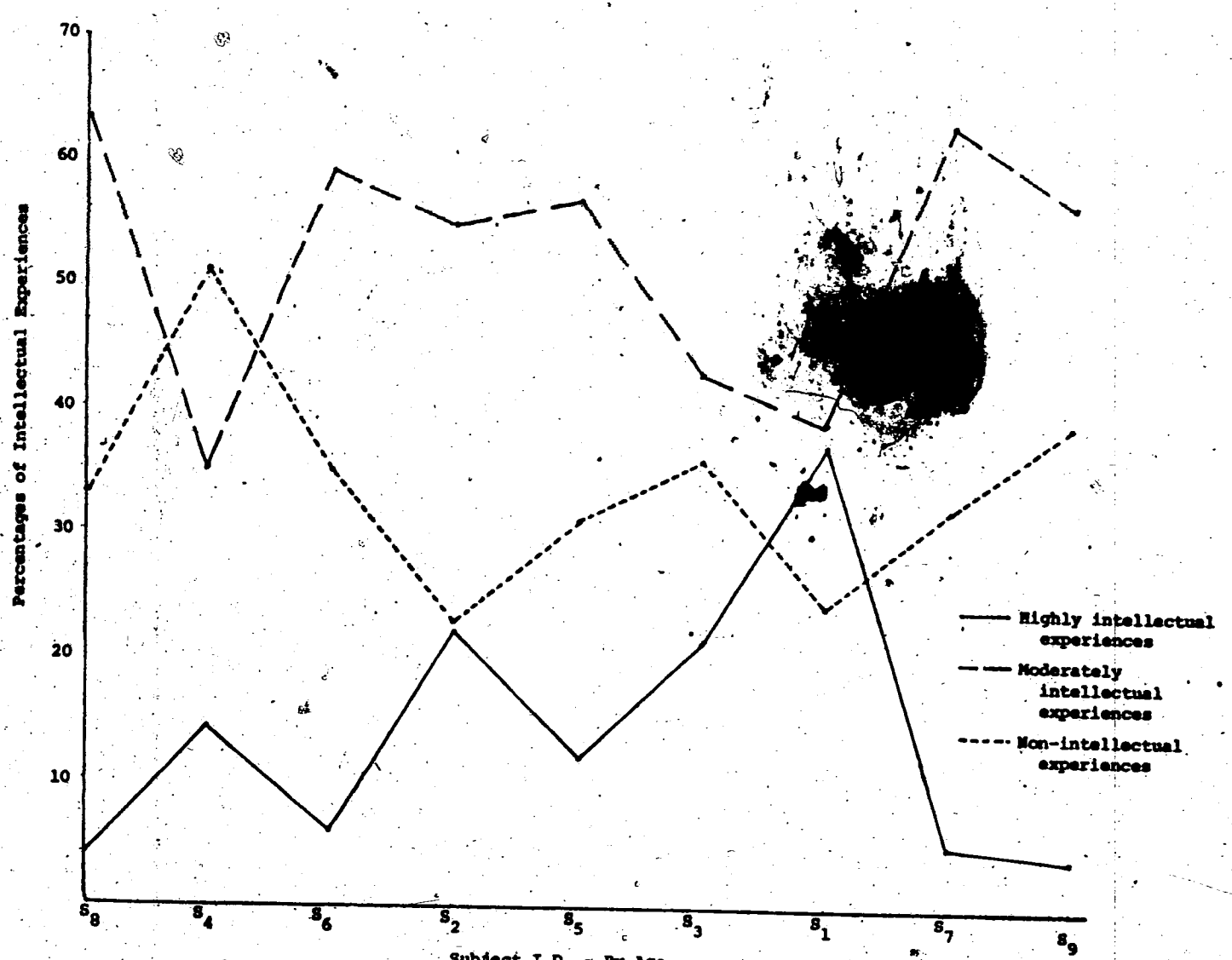

Figure 1. Comparison of Types of Intellectual Experiences Available to Each Subject and Ranked by Subject's Age in Months

receive this personal interaction at an earlier age and are not now receiving it in the family day care setting. Thus the subjects appear lacking in the basic human interactions, which are the foundation for producing intellectual experiences. Lacking these experiences, they probably will not be intellectually competent by age three.

From her study Carew (1974) calculated the proportions of highly intellectual experiences a child needs so that by age three he could be defined as either highly intellectually competent, of average competence, or not competent. However, in her study, there is little attention given to the effect of the clusters of moderately intellectual or non-intellectual experiences. Since, in this investigation nearly every subject had, in comparison to the other two clusters, far more moderately intellectual experiences, it might be suggested that more attention needs to be given to the importance of this cluster of experience in a child's developing intellectual competence. The observation of the subjects having more moderately intellectual experiences than either highly intellectual experiences or non-intellectual experiences might be a reflection of the observed family day care situation, or it may simply mean that the greater percentage of all children's experiences fall into this particular cluster.

In order to compare the previous percentages of highly intellectual experiences determined in her study of those children from 12 to 36 months of age, it was noted that Carew (1974) had observed a number of similar-aged children in their own homes in order to devise some

norms that could be used for predicting the intellectual competence of children. She observed these children in their own homes at four different intervals over the two-year period. Table II presents her findings. She found from her longitudinal study of developing intellectual competence that the child who was predicted to be highly intellectually competent at 3 years of age was engaging in highly intellectual activities more than 11% of the time he was observed. In order to be of average intellectual competence at 3 years of age this same child was engaging in highly intellectual activities approximately 9.4% of the time he was observed. Unfortunately for the child, if he were predicted to be not competent eventually at 3 years of age, he was observed as being engaged in highly intellectual activities only 2% of the time.

By 30 to 33 months of age the child who was predicted to become intellectually competent at 3 years of age was involved in highly intellectual experiences 42% of his observed time, while the child who would likely lack competence at 3 years of age was engaged in intellectual experiences only 20% of the time he was observed. The child of 30 to 33 months of age who was predicted to be of average intellectual competence at 3 years of age was engaged in highly intellectual experiences approximately 33% of his observed time.

As can be ascertained from the previous findings, Carew's (1974) norms are concerned only with the highly intellectual experiences of a subject. It was necessary therefore, to compare the percentages of highly intellectual experiences of each subject as determined by the HOME Scale, with Carew's norms. This comparison

TABLE II

Effect of Change in Age on Development of Intellectual Competence (Carew, 1974)*

Age in Months	Proportions of Intellectual Experiences		
	Highly Competent	Average	Low Competence
12-15	.11	.094	.02
18-21	.21	.181	.14
24-27	.28	.229	.15
30-33	.42	.331	.20

* Data reported above as in Carew's tables.

was to determine the degree to which each child was or was not developing intellectual competence according to the percentages of highly intellectual experiences in which he was engaged. Table III shows the comparison between the proportions of each child's highly intellectual experiences as determined by the HOME Scale in this study, and those norms of Carew's (1974) study which show the proportions of highly intellectual experiences needed for a child to be highly intellectually competent, of average competence, or not competent at 3 years of age. The subjects were ranked in descending order depending on the proportions of highly intellectual experiences, and the age of each subject is also listed. In reference to the four age groups observed by Carew (1974), three of the subjects in this study, S_2, S_5, and S_7, did not fall into one of these age groups and therefore were placed in the age group that was nearest to their age in months. S_1, S_2, S_3, and S_4 had, according to the findings of this study, a percentage of highly intellectual experiences that, when compared to Carew's (1974) norms, indicated that they should be highly intellectually competent at 3 years of age. S_6 and S_8 had a percentage of highly intellectual experiences that, when compared with Carew's norms, indicated they would be between average and low intellectual competence at 3 years of age. The remaining three subjects S_5, S_7, and S_9 had a percentage of highly intellectual experiences which suggests, when compared to Carew's norms, that they probably would not be intellectually competent at 3 years of age.

In conclusion, it appears that less than half of the nine children selected from the 44 existent children in the licensed and

TABLE III

Comparison Between the Proportions of Highly Intellectual Experiences for Subjects in this Study and those Represented by Carew

Subject I.D.	Age (months)	Proportion of Intellectual Experiences: Highly Intelligent Experiences	Carew's Norms for this Age: High	Average	Low
S_1	26	*.37	.28	.229	.15
S_2	17	*.22	.21	.181	.14
S_3	21	*.21	.21	.181	.14
S_4	14	*.14	.11	.094	.02
S_5	17	.12	.21	.181	.14
S_6	15	.06	.11	.094	.02
S_7	29	.05	.42	.331	.20
S_8	12	.04	.11	.094	.02
S_9	32	.04	.42	.331	.20

* Children who are having a greater number of experiences than Carew's norms show as being necessary to be highly intellectually competent at 3 years of age.

supervised family day care homes in Edmonton are having according to Carew's norms the kinds of intellectual experiences that contribute to high intellectual competence. The remaining children in the sample, approximately 56%, are not expected to be highly intellectually competent at 3 years of age.

SITUATIONS AFFECTING DEVELOPMENT OF COMPETENCE

The second main problem to be discussed from the data is concerned with which of the two identified environmental situations is most important in influencing the highly intellectual experiences of a subject of 12 to 36 months of age.

The percentages for both situations classified as either human or non-human are presented in Table IV. These situations are compared for each subject ranked in descending order according to percentages of highly intellectual experiences, in order to ascertain which of the two situations has the higher proportion and could be considered to be affecting the development of highly intellectual experiences. The proportions of highly intellectual experiences attributed to the responsive human environment ranged from .60 for S_2 to .08 for S_8. The proportions of highly intellectual experiences attributed to the physical environment ranged from .40 for S_2 to .92 for S_8. From the data it appeared that those subjects with the greater percentages of highly intellectual experiences, such as S_1, S_2, S_3, tended to have a greater percentage of responsive human interactions. On the other hand, those subjects with the least percentages of highly intellectual experiences, such as S_5, S_7, and S_8, tend to have the greater percentage of the physical environment as their most important

TABLE IV

Proportions of the Human and Non-Human Situation for Subjects Ranked in Descending Order of Highly Intellectual Experiences

Subject I.D.	Proportion of H.I.E.	Situations	
		Human	Non-Human
S_1	.37	.55	.45
S_2	.22	.60	.40
S_3	.21	.535	.465
S_4	.14	.515	.485
S_5	.12	.155	.845
S_6	.06	.53	.47
S_7	.05	.105	.895
S_8	.04	.08	.92
S_9	.04	.50	.50

environmental situation.

In order to make a comparison between the proportions of each of the two identified environmental situations, in the total number for each child, ratios were calculated for each child. Either the percentage of the adult-child interactions was the most important situation for influencing the child's percentages of highly intellectual experiences, or the physical environment was the most important influence. Figure 2 graphically shows these ratios between the two situations for each subject ranked in descending order according to the percentage of highly intellectual experiences for that child. The ratios of the two identified environmental situations range from S_2 with a human to non-human ratio of 1.5 to S_8 with a ratio of .12.

With the exception of S_6 and S_9, the graph reveals that, as the percentages of the subjects' highly intellectual experiences increase, the ratio of human to non-human is higher; that is it increases too. This suggests that the input contributing to the greater number of highly intellectual experiences comes from the human environment.

As may be observed from Figure 2, both S_6 and S_9 appeared to deviate from the tendency of a decreasing ratio of the two identified environmental situations. The observations for S_9 were probably more atypical than the other observed subjects. Only four observations of a total of five were completed. Before the scheduled fifth observation could take place, the social worker in charge of the case removed the subject from the setting. Therefore, instead of using 300 units of experience, the data are being analyzed on 240 units only.

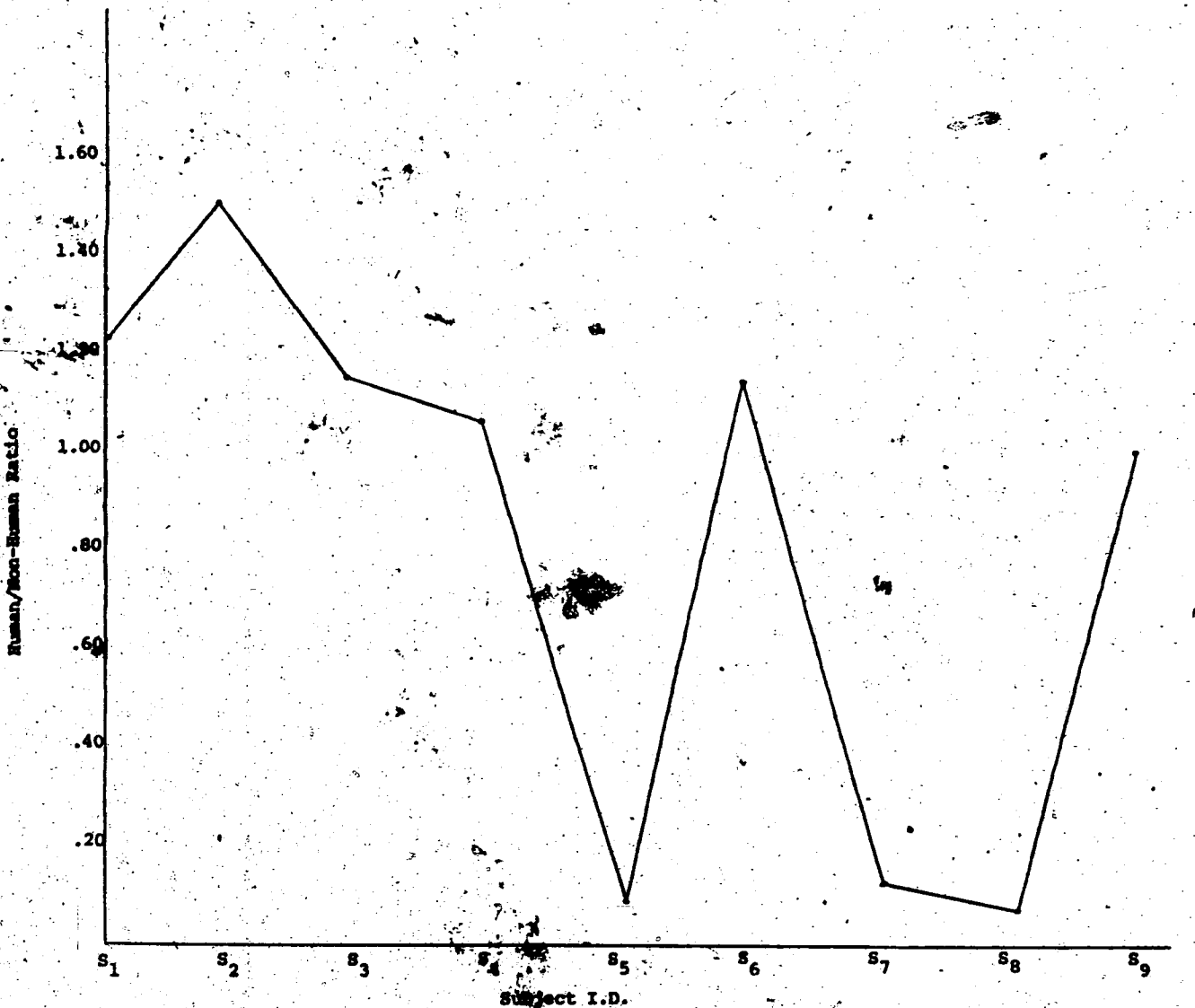

Figure 2. Ratio of Human/Non-Human Environment for Subjects Ranked in Descending Order of Highly Intellectual Experiences

Also noted is the fact that the observer did not see the caregiver interacting with the subject at any observed time, and the human interactions experienced by S_9 were due to the presence of other children and not the caregiver in his family day care situation.

On the other hand, S_6 was almost constantly with his caregiver during the observations, and yet only a small proportion of his highly intellectual experiences was attributed to human interaction. This might suggest that caregivers may need support in selecting and structuring activities that are beneficial to a particular child's development. Just her presence with the child, in this case, is not sufficient. It was observed at the time of recording that the subjects who were receiving the greater amounts of valuable intellectual experiences had caregivers who appeared to have a degree of knowledge of what was important in the child's development, especially in language development. Whether these behaviors of the caregivers were typical of regular unobserved care cannot be predicted from this study.

These findings are in agreement with those reported in studies in related literature, and they appear to indicate that children of the ages of 12 to 36 months who had adult guided stimulation, as opposed to those who were left to unguided and self-guided interaction with the physical environment, produce higher levels of learning. Learning in this case refers to intellectual development.

SOURCES OF HIGHLY INTELLECTUAL EXPERIENCES

The third important question to be researched in this study is concerned with determining which experiential source of the two identified as either self-directed behaviors or environmental inputs contributes to the higher percentage of a child's highly intellectual experiences. The calculated percentages of each child's self-directed and environmental sources are listed in Table V for the subjects ranked in descending order of highly intellectual experiences. The percentages of the child's own self-directed activities as the source of his highly intellectual experiences range from S_2 with .515 to S_8 with .98. On the other hand, the percentages of a child's human and physical environments as the source of his highly intellectual experiences range from S_2 with .485 to S_8 with .02.

Figure 3 shows the ratio of the child's own self-directed activity and his environmental inputs as the identified sources of intellectual experiences for the subjects ranked in descending order of highly intellectual experiences. The ratio of environment to experience as the most important characteristic source for intellectual development ranged from .92 for S_2 to .02 for S_8. The data from this figure indicate that, as there is a general decrease in the percentage of intellectually valuable experiences a subject may have, there is a gradual increase in the proportion of inputs from the child's own self-directed activity as the source for his highly intellectual experiences. At the same time, as the importance of a child's human and physical environments as the sources for his intellectual experiences generally decrease there is a corresponding

TABLE V

Proportions of Self-Directed and Environmental Sources for Subjects Ranked in Descending Order of Highly Intellectual Experiences

Subject I.D.	Proportion of H.I.E.	Sources	
		Self-Directed Experience	Human and Physical Environments
S_1	.37	.53	.47
S_2	.22	.515	.485
S_3	.21	.66	.34
S_4	.14	.78	.22
S_5	.12	.69	.31
S_6	.06	.685	.315
S_7	.05	.745	.255
S_8	.04	.98	.02
S_9	.04	.90	.10

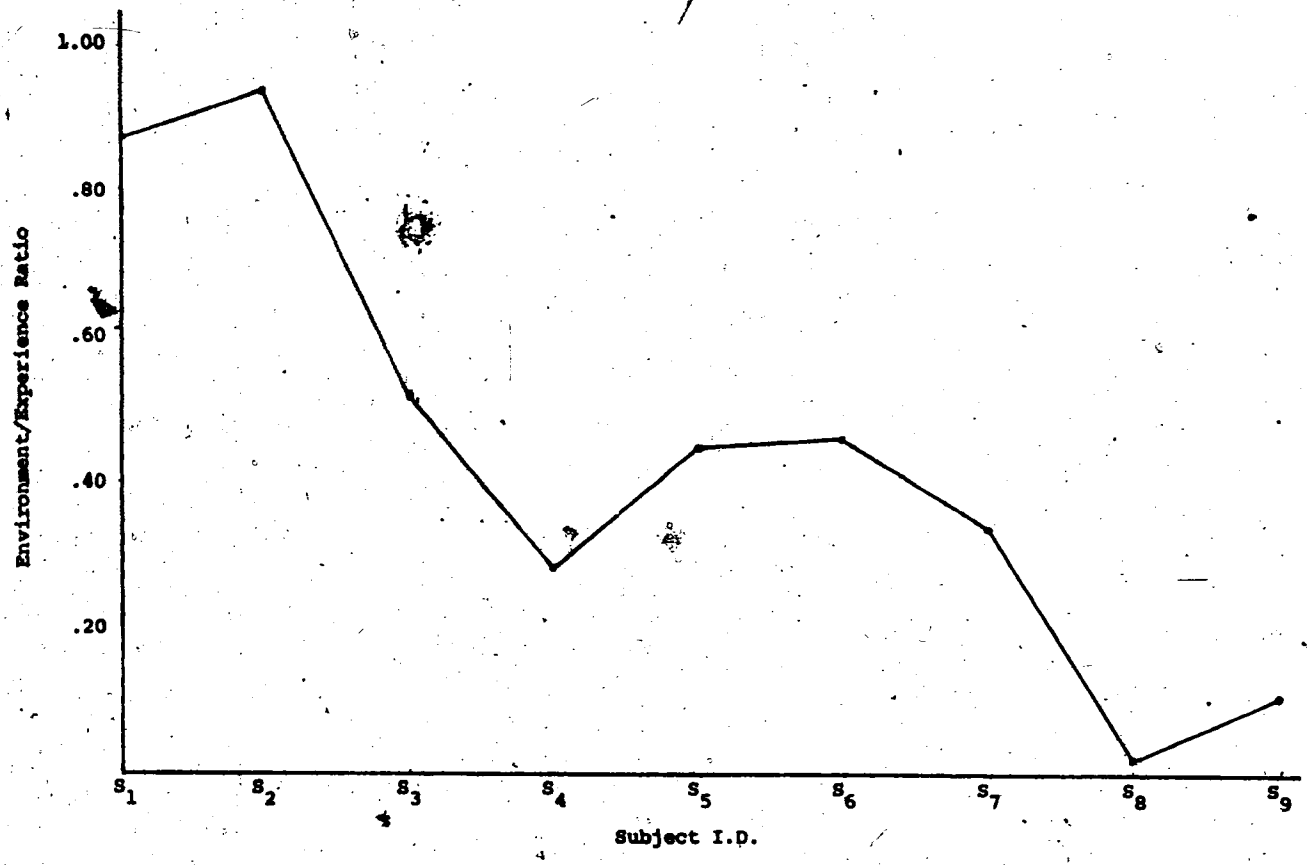

Figure 3. Ratio of Environments/Child's Own Self-Directed Activity for Subjects Ranked in Descending Order of Highly Intellectual Experiences

general increase in the percentage of a child's highly intellectual experiences. This analysis of data supports similar findings from previous research studies and reflects the consensus in the related literature surveyed.

SOCIAL WORKERS' CRITERIA

The next section deals with the comparison between the rankings of the subjects' intellectual experiences determined by the HOME Scale and the ratings done by the social workers of the Edmonton Department of Social Services, Day Care Branch. Following is a summary of some of the criteria used by the professional social workers to choose a cross-sectional sample of settings which would potentially provide stimulating experiences. The most important factor in considering where to place these environments on the continuum appeared to be the way the family day care caregiver related to the case worker. It was noted that this was determined by whether she appeared on the defensive and believed the case worker was an evaluating authority.

The criteria used by the social workers in determining where to place a child for optimal development include such aspects as the following.

1. General feelings about the family day care caregiver's attitude
   (a) her concern about care of the child or about the money she will receive as payment
   (b) her perception of herself as a person
   (c) her perception of her role as a family day care

caregiver

(d) her attitudes about child development.

2. Her techniques in relating to the children

(a) general happiness of the child

(b) warmth and physical contact.

3. Her attendance at inservice meetings

(a) enthusiasm

(b) openness to advice and other inservice input.

4. Her method of controlling the children (a) in the context of the child's behavior (b) dependent on her own feelings.

5. Her interaction and communication with the parents

(a) sensitive or prescriptive

(b) understanding or distant.

6. Basic care provided the child, as observed in case worker visits.

7. State of the caregiver's physical, emotional, and mental health.

Figure 4 has been devised to represent graphically the correspondence between the ranks of the subjects' intellectual experiences as determined by the HOME Scale and the ratings done by the social workers of the Edmonton Department of Social Services. Figure 4 shows the corresponding agreement existing or not existing between the HOME Scale's ratings of the three classifications of a subject's intellectual experiences, and the social workers' ratings of three levels of the situations potentially capable of promoting high intellectual

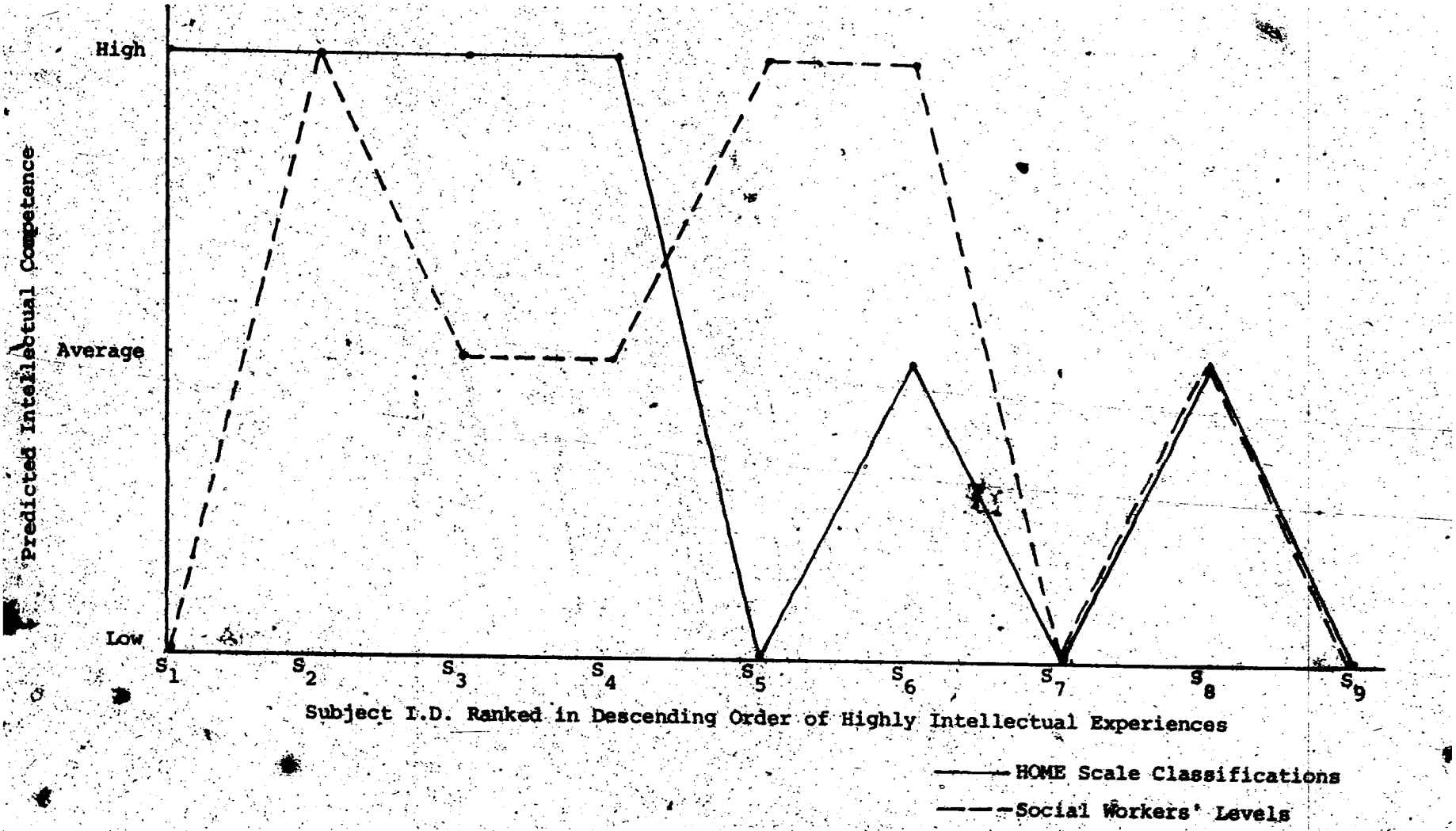

Figure 4. Correspondence of the Classifications from the HOME Scale Ratings and the Social Worker's Ratings of Situations Potentially Capable of Promoting High Intellectual Competence in Children

competence in children. The predicted intellectual competence is rated either as high, average or low. It may be pointed out that from the findings of the HOME Scale, it is predicted that four of the subjects, S_1, S_2, S_3 and S_4 would be highly intellectually competent at 3 years of age, two of the subjects, S_6 and S_8, should be of average competence and three of the subjects, S_5, S_7 and S_9, would probably not be competent. The social workers predict that, given the conditions the children find themselves in at this particular time, three of the subjects, S_2, S_5 and S_6, should receive the necessary experiences to ensure their high intellectual competence, three or S_3, S_4 and S_8, should be of average competence, and three of the subjects, S_1, S_7 and S_9, probably would not receive the experiences required for developing intellectual competence. As can be ascertained from Figure 4 there were differences existing between the predictions made from the findings of the HOME Scale, and the prediction made by the professional social workers using their own criteria. Three of the subject's classifications, as determined by the HOME Scale, namely S_1, S_3 and S_4, are ranked above the ratings given by the social workers. On the other hand, two of the subject's classifications, as determined by the HOME Scale, namely S_5 and S_6, are ranked below the ratings given by the social workers. The remaining four subjects, S_2, S_7, S_8 and S_9, are classified in the same ranks by both the HOME Scale and social workers. From these findings, no conclusions can be made about the effectiveness of either the criteria observed by the HOME Scale or that utilized by the social workers. However, owing to the fact that five of the

nine subjects were not in corresponding ranks, it would appear that further investigation might be needed in the area of effective family day care selection procedures.

SUMMARY OF THE FINDINGS

1. Forty-four percent or four of the nine subjects were having highly intellectual experiences. When compared with Carew's findings, these four subjects should be intellectually competent by age three.

2. Twenty-two percent of two of the nine children were having a moderate proportion of highly intellectual experiences, and when compared with Carew's findings would be rated somewhere between average and low intellectual competence at three years of age.

3. Thirty-three percent of the nine children were considered to be having so low a percentage of highly intellectual experiences that by age three they would not likely display intellectual competence.

4. As the percentages of the highly intellectual experiences a subject was having increased, the responsive human interactions also tended to increase.

5. Conversely, as the percentages of the highly intellectual experiences the subject was having increased there was a trend for the effective input stimulation from the physical environments to decrease.

6. As the percentages of highly intellectually valuable experiences a subject was having increased, there was a trend for

the inputs from the environmental source to increase.

7. Conversely, as there was an increase in the percentage of intellectually valuable experiences a subject was having, there was also a decrease in the percentage of the child's own self-directed activity as the source for his highly intellectual experiences.

8. Only four of the nine ratings made by the social workers corresponded to those derived from observations as classified by the HOME Scale. In two cases the differences spanned two of the three levels while in the three others the span was only the one level above or below.

SUMMARY OF THE CHAPTER

In the chapter the data obtained from the observations and calculated by the HOME Scale were presented, analyzed, and discussed in relation to the four research questions. These data were used to determine the degree to which the subjects in the study were developing intellectual competence through valuable intellectual experiences and environmental inputs. The following chapter presents the summary of the study, a summary and discussion of the findings and conclusions, implications for practice, and recommendations for further research.

CHAPTER V

SUMMARY OF THE STUDY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

SUMMARY OF THE STUDY

This study was designed to explore the relationship that might exist between the intellectual [illegible] of the child in each separate selected family day care situation, and the opportunities each has had for environmental and experiental stimulation. In addition, the investigation was designed to determine the extent to which each of the two identified environmental situations and each of the two identified developmental sources were utilized in delineating the highly intellectual experiences. Finally, the investigation attempted to ascertain if there were congruence between the actual existence of intellectual experiences as observed in a child's family day care setting, and the potential quality of experience in that family day care home, as rated by professional social workers.

In order to investigate these relationships, four research questions were devised and were stated as follows:

1. To what extent are children in the licensed and supervised family day care homes in Edmonton having experiences that contribute to their development of intellectual competence?

2. In relation to the situations investigated, which of the two identified situations are affecting a child's development of competence:

(a) those in which the child is relating to his human

environment, or

(b) those in which he is involved with his non-human environment?

3. In the investigation, which sources of intellectually valuable experiences are affecting the child's development of intellectual competence:

(a) the child's own active behavior, or

(b) various environmental inputs?

4. In the selection of day care homes, does a correspondence exist between

(a) the rankings of the subjects' observed intellectual experiences, and

(b) the ratings of the potential for the provision of intellectual experiences in the selected family day care homes as determined by the social workers' selection criteria?

The population used for this investigation was the 44 children of 12 to 36 months of age in the 44 licensed and supervised family day care homes in the City of Edmonton, as of May 1, 1975. From this population a stratified sample of nine children, or 20% of the total population, was selected by a panel of four of the professional social workers who were involved with these licensed and supervised family day care homes. The nine children were distributed into three equal groups. This distribution into groups was made by the social workers on the basis of their predictions of each situation's potential to provide intellectual experiences at a high, moderate or

low level.

After an exhaustive survey of behavioral instruments, the HOME Scale (Carew, 1974) was selected as being the only appropriate instrument designed to attempt to answer all four of the research questions posed.

To collect the data from observations the nine children from 12 to 36 months of age were observed a total of five times in their family day care settings. For each observation three 10-minute samples were made. This resulted in a total for each child of 60 units of 15 seconds each. All the observations were taped. The child was viewed in his setting for 15 second and then, for the next 15 seconds, an audio tape was made of the behaviors that were observed.

In order to utilize the observations the taped observations were transcribed, and from these transcriptions the dimensions of the HOME Scale were coded according to the behavior of the child, the behavior of the person who interacted with the child, and the objects the child attended to within the context of the activity. From the coded information, a judgement was made as to which activity in the activity dimension was most relevant to the experience. Then from the completely coded dimensions of the HOME Scale, the data were interpreted to answer the four stated research questions. In order to answer the first question percentages of a subject's highly intellectual experiences were calculated and compared with norms found by Carew (1974). From the comparisons of these calculated percentages of highly intellectual experiences, a prediction was made regarding the intellectual competence of the child at 3 years

of age. In the treatment of the second and third questions the subject's total observed experiences were used to calculate percentages for the situations and the sources, and then comparisons were made between the percentages of experiences for each of the two designated situations and the two designated sources respectively. To process the data for the final question the determined percentages of highly intellectual experiences were consulted in order to place the children in one of three developmental levels as designated by the HOME Scale. The placement of subjects into groups was determined by the social workers, based on their estimation of the potential of each situation for providing developmental experiences. A comparison between the results of the two placements of the subjects in the three groups was then made.

SUMMARY OF THE FINDINGS AND CONCLUSIONS

Following is a summary of the findings for each research question.

Findings for Question 1

What percentages of highly intellectual experiences are the children of 12 to 36 months of age, having in their family day care settings?

1. Forty-four percent or four of the nine subjects were receiving intellectually valuable experiences. According to Carew's findings, if such experiences are continued in similar manner, then by age three those subjects should be intellectually competent.

2. When compared with Carew's population, two of the nine

children, or 22%, were having a moderate proportion of highly intellectual experiences and by age three, according to Carew's norms, would probably be rated somewhere between average and low intellectual competence.

3. Three of the nine children, or 33%, were considered to be having so low a percentage of highly intellectual experiences that by age three they would not be likely to display intellectual competence.

In summary, less than half of the observed children were having highly intellectual experiences in their family day care settings. The larger proportion of the children therefore, according to Carew's norms, could not be predicted to be highly intellectually competent at the age of three years.

Findings for Question 2

In which of the two environmental situations, that are identified in this study as either the human or the physical environment, is the larger percentage of highly intellectual experiences occurring for the selected subjects of 12 to 36 months?

1. The data gathered from the recorded observations of the subjects in these two developmental situations indicate that, as the percentages of the highly intellectual experiences a subject was having increased, the percentage of situations providing responsive human interaction also tended to increase.

2. As the percentages of the highly intellectual experiences each subject was having increased there was a trend for the percentages of input stimulation from the physical environments to decrease.

3. It would appear then that, for the child of 12 to 36

months of age in this population, the development of high intellectual competence was stimulated more by the human environment than by the physical environment.

Findings for Question 3

In which of the two developmental sources, that are identified as either environmental sources or self-selected activities is the larger percentage of highly intellectual experiences observed in the selected subjects of this study?

The data gathered in connection with these environmental sources indicate that:

1. As the percentage of highly intellectual experiences a subject was having increased, there was a tendency for the percentages of inputs from the environmental source to increase as well.

2. Conversely, as there was an increase in the percentage of intellectually valuable experiences a subject was having, there was a decrease in the percentage of the child's own self-directed activity as the source for his highly intellectual experiences.

3. In conclusion, it would then appear that in this population, for the child of 12 to 36 months of age who is developing high intellectual competence, the environmental input from the child's milieu becomes more important than the input from his own self-directed activity.

Findings for Question 4

What correspondence exists between
(a) the rankings of the subjects' highly intellectual experiences determined by the HOME Scale, and
(b) the rankings of the potential level of intellectual experiences provided by family day care settings as predicted using the criteria of professional social workers.

1. Three of the family day care situations for the subjects were ranked in classifications determined by the HOME Scale above the ratings as determined by the social workers' criteria.

2. Four of the subjects' family day care situations were ranked in classifications determined by the HOME Scale in corresponding levels as those predicted by the social workers' criteria.

3. Two of the subjects' family day care situations were ranked by the HOME Scale into classifications below the levels at which they were determined by the social workers' ratings.

4. Therefore four of the nine ratings corresponded with those derived from observation as classified by the HOME Scale. In two cases the differences spanned two of the three levels, while in the three others the span was only the one level above or below.

From this data it would appear therefore that less than half of the subjects displayed correspondence between the classifications as determined by the HOME Scale and the levels as determined by the ratings of the social workers.

DELIMITATIONS

Conclusions based on the findings of this research should be made in the light of the following delimitations of the study.

1. The study is only concerned with the 12 to 36 month old child in family day care settings in Edmonton.

2. The total population with which this study is concerned consists of 44 children in licensed and supervised family day care homes in one large urban center.

3. Attempts were made to control only the one variable of age.

4. Although no one will disagree with the importance of the global development of a child, this study will only deal with intellectual development.

IMPLICATIONS

This study has demonstrated that a child of 12 to 36 months of age in his family day care setting in Edmonton, with a total population of 44 subjects of this age, appears to benefit more from a greater percentage of adult-child interactions than from other stimulating experiences in his development of intellectual competence. This concluding statement reflects the findings in the related literature and such findings lead to four important implications.

1. The HOME Scale could be very profitably used as one tool to assist in discerning selected aspects of the child's development, especially his developing intellectual competence in a family day care setting. In this way it might be of some assistance to supervisors in both the selecting of family day care settings and in the licensing of them.

2. The results from this study point up the importance of the young child's interactions with significant others in the human environment in order to develop the coping behaviors and manipulating abilities that promote intellectual competence in transactions with his environment. The importance of the human environment in his ability to make use of the physical environment should not be underestimated by those providing child care.

3. Family day care caregivers, supervisors and parents should consider the importance of the various environmental inputs in providing intellectually stimulating experiences for the children in their care. The results of this study appear to give support to the importance of the stimulation provided by a carefully structured environment beyond that provided by the child's own self-selecting activities in the devlopment of intellectual competence at the age of three.

4. According to the findings, a child needs responsive human interactions and stimulating environmental inputs for developing intellectual competence. Since many caregivers in family day care situations may not have sufficient information about, there is a need for support systems to be developed to assist the caregivers in this function.

RECOMMENDATIONS FOR FURTHER RESEARCH

Before these implications can be instituted, further research of the following kinds should be undertaken:

1. Further study might be undertaken of any or all of these nine children to see if the predictions made were verified at age three.

2. As a follow-up investigation to the present study, case studies of one child in each of the three developmental categories could be presented.

3. A comparative study could be designed to provide further data on the environmental and experiential sources and situations in

this study.

4. There is a need for replication of this study with larger and/or different populations, and controlling more or different variables.

5. Consideration should be given to an extension of this investigation, of the child's global development, to take into account different aspects which go beyond the single dimension explored in this study.

6. Further research is needed on the components of the HOME Scale to increase its validity and reliability for observations in family day care situations.

7. The HOME Scale might also be used profitably in studies of children, that involve observation of the situations and sources of their intellectual experiences.

8. There is a need for longitudinal studies to make further investigations into the aspects of environmental input.

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APPENDICES

APPENDIX A

SYNTHESIS OF THE HOME SCALE

Experience

HIERARCHICAL ORGANIZATION

Highly Intellectual

Moderately Intellectual

Non-Intellectual

Not Hierarchical

Activity 1	Type of Experience 2	Mode 3	Level - Quality of Complexity of 4	Purpose - Cognitive 5
Cluster I 1. Verbal, symbolic 2. Spatial, perceptual, fine motor 3. concrete reasoning 4. expressive skills 5. executive skills **Cluster II** 6. exploration of and play with household items 7. play with toys 8. exploration of nature 9. gain of general and routine information **Cluster III** 10. basic care 11. large motor development 12. purposeless behavior 13. transitional behaviors **Cluster IV** S - social and emotional	1. participatory 2. preparatory 3. onlooking/ observation 4. influence	1. verbal 2. fine motor development 11. large motor development 0. passive/ attention	**Verbal Mode** 1. Phrases and sentences 2. Single intelligible words 3. babbling vocally a) simple words b) communicative gestures **Passive Attention Mode** 4. Look and listen 5. Look only **F & L Motor Modes** 1. Precision or sequential 2. finer motor coordination 3. simple motor coordination	**Verbal Mode** 1. Task purpose - express abstract ideas 2. to master a verbal skill 3. request information 4. to give information 5. to babble to self **Fine and Large Motor Modes** 1. construct a final product 2. to master a developing skill 3. to follow sequential directions 4. explore or investigate properties of objects 5. perform undifferentiated routine behavior 6. idle or purposeless **Passive/Attention** 5. observation 6. idle or purposeless

HUMAN ENVIRONMENT

Initiation

Initiated by:

1. principal caregiver
2. subject child
3. other adult
4. other child
5. peer

Person

1. Principal caregiver
2. Subject
3. Other adult
4. Other child
5. Peer
6. T.V.
7. Observer

Encouragement Index

1. Other person encourages
2. Other person discourages
3. Neutral attitude

Interaction Technique

Teach

21. dictactic teaching
25. Justification or statement of a rationale
26. active participation

Information

22. general information

Directive

23. Suggestion or command
31. Post. reinforcement
37. Focus on task
26. Uses child as a resource for goods or services
28. consents without yet [illegible]
29. does

Compliance Index

1. S complies
2. S does not comply

0 - not relevant or unknown

Verbal Index

1. Verbal input
2. Sociocentric speech
3. Verbal interchange
4. Egocentric speech
5. Indirect verbal input
6. Background language

HUMAN ENVIRONMENT (Contd.)

Initiation	Person	Encouragement Index	Interaction Technique	Compliance Index	Verbal Index
			Restrictive		
			24. restricted or prohibited		
			32. negative reinforcement		
			34. distraction or ignoring		
			36. refusal to help or comply		
			Help		
			35. provides services or assistance		
			27. defends the child		
			Preparatory		
			38. provides material		
			39. changes location		
			Neutral		
			33. observing		

MATERIAL ENVIRONMENT

Object

Room 12	Restriction 13	Quality 14	Size 15
1. living 2. dining 3. kitchen 4. playroom 5. sub. bedroom 6. other bedroom 7. bathroom 8. stairs or hallway 9. study 10. den, sunroom, inside porch, T.V. room 11. baloony or outside porch 12. basement or attic 13. public place-indoor 14. open air	0. not restricted 1. restricted to crib or changing table 2. restricted to high-chair, car, swing seat, toilet or stroller 3. restricted to playpen, inside of automobile 4. physical restraint of being held or carried 5. verbal restraint to a specific room or imposition of a physical barrier	Same categories as for activity dimension - classified according to type of activity likely to stimulate	1. small portable 2. small non-portable 3. large portable 4. large non-portable

APPENDIX B

CODING SHEETS: REFER TO DIMENSIONS OF THE HOME SCALE

	Child's Experience					Human Environment						Material Environment				Transcriptions
Unit	Act	Exp Typ	Mode	Lev	Purp	Ini	Per	Enc Ind	Tec	Com Ind	Ver Ind	Rm	Res	Obj Ques	Obj Size	
1.	8	3	0	5	5	1	N/A	1	23	1	1	1	0	8	1	Caregiver asks subject where the bird is and she starts looking around for him in the cage. She has little books in her hand.
2.	1	1	1	2	4	1	1	1	37	1	3	1	0	1	1	She is sitting on the chesterfield with the caregiver and talking to her. The caregiver says, "Where is the bear?" and points to the little bear on the book.
3.	1	1	1	2	2	1	1	1	37	1	3	1	0	1	1	Caregiver says "Where is the boy?" and subject says "boy" and points to the boy on the book.
4.	1	1	1	2	2	1	1	1	37	1	3	1	0	1	1	Caregiver takes the book and says "What's that?" and subject says, "piggy" then "horsey" then "cow" and points to herself and says "baby" and caregiver says "kitty."
5.	1	1	1	2	2	2	1	1	37	1	3	1	0	1	1	Now she is pointing to herself and saying "bear" and caregiver repeats it after her.
6.	1	1	1	2	2	1	1	1	37	1	3	1	0	1	1	Still looking at the little book and turning the pages. Caregiver says "find the piggy" and she turns pages until she finds it. She says "piggy."
7.	1	1	1	2	2	1	1	1	37	1	3	1	0	1	1	Subject still with book on her lap and pointing to it and the caregiver says, "Let's have a look at this book. She points to different things that child repeats after her.
8.	1	1	1	2	2	1	1	1	37	1	3	1	0	1	1	She points to things in the book and child repeats after her exactly what they are.

	Child's Experience					Human Environment						Material Environment				Transcriptions
Unit	Act	Exp Typ	Mode	Lev	Purp	Ini	Per	Enc Ind	Tec	Com Ind	Ver Ind	Rm	Res	Obj Ques	Obj Size	
1.	7	1	11	3	4	N/A	N/A	N/A	N/A	N/A	N/A	6	0	7	1	Children are on the bed running car and truck along the Pinnochio game.
2.	7	1	11	3	4	N/A	N/A	N/A	N/A	N/A	N/A	6	0	7	1	Pushing the toys off the board onto the bed.
3.	3	1	1	3	4	2	9	N/A	N/A	N/A	2	6	0	7	1	Car falls on the floor between bed and wall. He points to it, babbling to me.
4.	9	3	0	5	5	2	4	3	22	0	N/A	8	0	6	2	Now he's gone down the stairs watching peer play with the light.
5.	6	1	11	3	4	N/A	N/A	N/A	N/A	N/A	N/A	8	0	6	2	He tries to touch the light switch but can't reach it.
6.	5	3	0	5	5	4	4	1	26	2	N/A	8	0	6	1	Peer tries to stick a golf ball into subject's mouth.
7.	6	1	11	3	4	N/A	N/A	N/A	N/A	N/A	N/A	8	0	6	2	Subject tries to reach light, says "light" says "bye-bye" and goes down the rest of the stairs.
8.	8	1	1	2	4	N/A	N/A	N/A	N/A	N/A	N/A	1	0	8	2	Subject is downstairs, points to a bird and says "birdie."

APPENDIX C

OBSERVATION FORMAT

OBSERVATION FORMAT

One observation